DETAILED ACTION

Applicant(s) Response to Official Action

[1] The response filed on June 10, 2008 has been entered and made of record.

Response to Arguments

[2] Presented arguments have been fully considered but are held unpersuasive. Examiner's response to the presented arguments follows below.

Claim Rejections - 35 USC § 103

Summary of Arguments:

Regarding claim 1, applicant argues that Lawler does not disclose conveying a watermark [remarks: page 8, para. 3].

Regarding claim 8, applicant argues that Lawler does not disclose, "... a compensation for a variation in a relationship of an input color value and at least of one of ink and dye" [remarks: page 8, para. 7].

Examiner's Response:

Examiner respectfully disagrees.

Regarding claim 1, the watermark feature is disclosed by Daly not Lawler. Lawler is used to modify Daly's invention and to apply it to printing instead of the human visual system.

Regarding claim 8, the limitation is essentially a description of the forward dot gain curve, which is disclosed by Lawler on page 4 in relation to fig. 6.

Accordingly, Examiner maintains the rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

[3] Claims 1-5 and 8-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daly-819 [US 5,905,819] which incorporates by reference Daly-483 [US 5,394,483] in view of Lawler [NPL document titled, "Know thy enemy: understanding dot gain and its effects"].

Regarding claim 1, Daly-819 meets the claim limitations, as follows:

A method of digital watermarking an image *[fig. 6]* comprising: adjusting the image *(i.e. 12-second image)* in accordance with values in a first representation *(i.e. 36-CSF) [fig. 6; col. 3, ll. 45-48; col. 4, ll. 31-40];* determining values *(i.e. values below the visual threshold)* to convey a digital watermark *(i.e. 10-hidden image)* in the adjusted image *(i.e. 36-CSF) [fig. 6; col. 3, ll. 25-31; col. 4, ll. 59-67]*; adjusting the values *(i.e. values below the visual threshold)* in accordance with a second representation *(i.e. 46-CSF $^{-1}$) [fig. 6; col. 5, ll. 1-5; col. 3, ll. 45-*

48] and combining *(i.e. 18)* the adjusted change values *(i.e. 46-CSF $^{-1}$)* and the image to produce a digital watermarked image *(i.e. 20-combined image) [fig. 6; col. 5, ll. 5-15]*.

Daly-819 does not explicitly disclose the following claim limitations:

The first and second representation being utilized by a printing process.

However, in the same field of endeavor Lawler discloses the deficient claim limitations, as follows:

A first *(i.e. fig. 6)* and second *(i.e. fig. 7)* representation being utilized by a printing process.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Daly-819 with Lawler to apply a forward and backward dot gain curve to the image, the motivation being to develop quality images by accounting for dot gain effects *[page 2, col. 2, para. 4; page 4, col. 1, para. 4]*.

Regarding claim 2, Lawler meets the claim limitations, as follows:

The method of claim 1, wherein the first representation comprises a forward dot gain curve *[fig. 6]*.

Regarding claim 3, Lawler meets the claim limitations, as follows:

The method of claim 2, wherein the second representation comprises a backward dot gain curve *[fig. 7]*.

Regarding claim 4, Lawler meets the claim limitations, as follows:

> The method of claim 3 wherein the backward dot gain curve comprises an inverse of the forward dot gain curve *[fig. 7]*.

Regarding claim 5, Lawler meets the claim limitations, as follows:

> The method of claim 1 wherein the printing process comprises an offset printing press *[page 1, col. 2, para. 1]*.

Regarding claim 8, Daly-819 meets the claim limitations, as follows:

> A method of steganographically hiding a signal in an image *[fig. 6]* comprising: determining change values *(i.e. values below the visual threshold)* to represent the signal *(i.e. 10-hidden image)* in the image *[fig. 6; col. 3, ll. 25-31; col. 4, ll. 59-67]*; and altering color values *(i.e. pixel values)* of the image by an amount *(i.e. 36-CSF)* to achieve the change values *[fig. 6; col. 3, ll. 45-48; col. 4, ll. 31-40]*, wherein the image includes the signal *(i.e. 10-hidden image)* steganographically embedded therein when printed with the printing process *[col. 3, ll. 45-48]*.

Daly-819 does not explicitly disclose the following claim limitations:

> wherein the amount includes a compensation for a variation in a relationship of an input color value and at least one of ink and dye provided by a printing process to represent the input color value, and

However, in the same field of endeavor Lawler discloses the deficient claim limitations, as follows:

wherein the amount includes a compensation *(i.e. forward dot gain curve)* for a variation in a relationship of an input color value and at least one of ink and dye provided by a printing process to represent the input color value *[fig. 6]*.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Daly-819 with Lawler to apply a forward dot gain curve to the image, the motivation being to develop quality images by accounting for dot gain effects *[page 2, col. 2, para. 4; page 4, col. 1, para. 4]*.

Regarding claim 9, Lawler meets the claim limitations, as follows:

The method of claim 8, wherein the printing process comprises an offset printing process *[page 1, col. 2, para. 1]*.

Regarding claim 10, Daly-819 meets the claim limitations, as follows:

The method of claim 8, wherein the steganographically hiding comprises digital watermarking *[col. 1, ll. 14-16]*.

Regarding claim 11, Daly-819 meets the claim limitations, as follows:

The method of claim 8, further comprising printing the image, wherein the printed image includes the signal steganographically embedded therein *[col. 3, ll. 45-48]*.

Regarding claim 12, Daly-819 meets the claim limitations, as follows:

> A method of processing an image to compensate for variation in a printing process *[fig. 6]*, wherein the image includes a plurality of color values *(i.e. pixel values)*, said method comprising: receiving a representation *(i.e. 46-CSF $^{-1}$)* of a variation in a relationship of an input color value *(i.e. pixel value)* and human visual system to represent the input color value *[fig. 6; col. 5, ll. 1-5]*; determining change values *(i.e. values below the visual threshold)* needed to alter the image to accommodate a digital watermark embedded *(i.e. 10-hidden image)* therein *[fig. 6; col. 3, ll. 25-31; col. 4, ll. 59-67]*; adjusting the change values *(i.e. values below the visual threshold)* with the representation *(i.e. 46-CSF $^{-1}$) [fig. 6; col. 5, ll. 1-5; col. 3, ll. 45-48]*; and modifying *(i.e. 18)* the image with the adjusted change values *(i.e. 46-CSF $^{-1}$)* to accommodate the digital watermark and to compensate for the variation *[fig. 6; col. 5, ll. 5-15]*.

Daly-819 does not explicitly disclose the following claim limitations (emphasis added):

> Receiving a representation of a variation in a <u>relationship of an input color value and at least one of ink and dye provided by the printing process to represent the input color value</u>;

However, in the same field of endeavor Lawler discloses the deficient claim limitations, as follows:

> Receiving a representation of a variation in a relationship of an input color value and at least one of ink and dye provided by the printing process to represent the input color value *[fig. 7]*.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Daly-819 with Lawler to apply a backward dot gain curve to the image, the motivation being to develop quality images by accounting for dot gain effects *[page 2, col. 2, para. 4; page 4, col. 1, para. 4]*.

Regarding claim 13, Lawler meets the claim limitations, as follows:

The method of claim 12, wherein the printing process comprises an offset printing press *[page 1, col. 2, para. 1]*.

Regarding claims 14-17, all claim limitations are set forth and rejected as per discussion for claims 12, 1, 8 and 10.

[4] Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daly-819 which incorporates by reference Daly-483 in view of Cass [US 6,023,525]

Regarding claims 6 and 7, Daly-819 meets the claim limitation as set forth in claim 1. Daly-819 does not explicitly disclose the following claim limitations:

The method of claim 1 wherein the image is watermarked using a scale to black technique.

The method of claim 1 wherein the image is watermarked using a scale to white technique.

However, in the same field of endeavor Cass discloses the deficient claim limitations, as follows:

> A method of modifying an image using a scale to black or white technique *[col. 5, ll. 14-25; It acknowledged that "scale to black" or "scale to white" techniques have special meaning in the specification. However, the scope of these techniques is unclear, i.e. what steps from the specification should be imported into the claims.]*.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Daly-819 with Cass to watermark using scale to black/white techniques, the motivation being minimize human viewer response and maximize scanner response to color changes *[col. 5, ll. 20-25]*.

Conclusion

[5] THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

[6] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Matthew C. Bella whose telephone number is (571) 272-7778, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dated: July 15, 2008

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